One of the central departures of Optimality Theory and its descendants from earlier models of generative phonology is the principle of the Richness of the Base (ROTB), which holds that the set of inputs to the grammar lacks language-specific properties (Prince and Smolensky 2008). In such models, the only locus of crosslinguistic variation is the set of ranked constraints. Consequently, generalizations over the underlying forms of morphemes, such as morpheme structure rules (Halle 1959) or morpheme structure constraints (Stanley 1967) cannot be invoked. In this talk, I will argue against ROTB on the basis of two phenomena in the phonology of Koryak, a Chukotko-Kamchatkan language of the Russian Far East. Specifically, I will show that the language's unusual system of dominant-recessive vowel harmony and the distribution of the segments v and w in morpheme-final position cannot be accounted for if we assume a rich base, and instead require an account that involves rules or constraints on the underlying forms of morphemes in addition to the language's surface phonology.